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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,961	10/31/2003	Sivakumar Ramasamy	0275M-000666/COB	8815

27572 7590 01/24/2007  
HARNESSE, DICKEY & PIERCE, P.L.C.  
P.O. BOX 828  
BLOOMFIELD HILLS, MI 48303

EXAMINER
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SHARP, JEFFREY ANDREW

ART UNIT	PAPER NUMBER
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3677

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/698,961	<b>Applicant(s)</b> RAMASAMY ET AL.	
	<b>Examiner</b> Jeffrey Sharp	<b>Art Unit</b> 3677	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-8,10-23,25-27,29-31,33,36-41 and 48-52 is/are pending in the application.
- 4a) Of the above claim(s) 19-22 and 48-52 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2,4-8,10-18,23,25-27,29-31,33, and 36-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

[1] This action is responsive to Applicant's remarks/amendment filed on 23 October 2006 with regard to the Official Office action mailed on 23 May 2006 and the interview held on 16 November 2006.

#### ***Status of Claims***

[2] Claims 1, 2, 4-8, 10-23, 25-27, 29-31, 33, 36-41 and 48-52 are pending. 19-22 and 48-52 are withdrawn from further consideration

#### ***Claim Objections***

[3] Claim 18 is currently objected to because of informalities. It appears the word "The" on line 1 of claim 18 should be --A--. It appears a comma should be inserted after "first exterior radius" on line 7. The word --fastener-- should be inserted before "head" on line 7.

Claim 26 is currently objected to because of informalities. It appears the word "eternally" (line 2) should be --externally--.

Claim 31 is currently objected to because of informalities. It appears the word "a" on line 4 of claim 31 should be deleted.

Appropriate action is required.

#### ***Claim Rejections - 35 USC § 112***

[4] The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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[5] Claims 8 and 10-17 are currently rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As for claim 8, it appears that the newly added "a flat" before "annular weldment area" should instead, be placed before "annular weldment surface" bridging lines 4 and 5. The weldment area is not flat, but instead, "annular" and cylindrical. The limitation as it stands causes confusion in scope. Furthermore, there is insufficient antecedent basis for the limitation "the member" on line 5. It cannot be readily determined if Applicant means --the bottom surface--?

Claims 10-17 suffer from at least the dependency on deficient claim 8.

#### ***Maintained Rejections***

[6] Claims 23, 25, 29, and 30 stand rejected under 35 U.S.C. 102(b) as being anticipated by Irimies US-5,493,833.

In short, and in its broadest reasonable interpretation, Irimies teaches a weld fastener having an elongated shank, enlarged head portion, substantially annular portion extending from the head opposite the shank, and having a second thickness (h) of less than 50% than, and more preferably 20-35% of the thickness of the head thickness (H-h). This is demonstrated in Chart A of Irimies, second embodiment of Group II, which yields 32%. Chart A of Irimies also satisfies the limitations of claims 29 and 30 when inches are converted into millimeters.

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[7] Claims 31, 33, and 37-41 stand rejected under 35 U.S.C. 102(b) as being anticipated by Bregenzer GB 2065011.

In short, and in its broadest reasonable interpretation, Bregenzer teaches an automotive vehicle apparatus comprising a laminate panel having a polymer layer between first and second metallic layers (page 1 lines 30-32), a ring arc stud welded to the laminate panel (inherent), said stud being welded via an annular weldment area (28) having a second thickness less than a first head (20, 24) thickness. The stud comprises a web portion (22), and shank (10), which may be threaded (page 1 lines 56-57). It is inherent that the smaller cross-section shank (10) has a first failure load less than a second failure load of the larger cross-section web (22). Bregenzer teaches that the annular weldment area may extend so that its exterior wall has at least a portion of its radius equal to an exterior wall radius of the head (supported by page 2 lines 12-13). Note that because a welded connection is claimed in the preamble, the structural description of the weldment area *prior to* welding is not given significant patentable weight, because such a limitation constitutes a product-by-process limitation.

***Response to Arguments/Remarks***

[8] Claims 1, 2, 4, 5, 8, 10, and 11 were previously rejected under 35 U.S.C. 102(b) as being anticipated by Arino et al. US-4,689,958.

Applicant's amendment has overcome this rejection, because Arino et al. fail to show the annular weldment on the bottom surface as now claimed. Consequently, upon further consideration, the rejection has been withdrawn in view of the new ground(s) of rejection necessitated by amendment made below.

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[9] Claims 1, 2, 5, 8, 10, 11, and 23-26 were previously rejected under 35 U.S.C. 102(b) as being anticipated by Logan US-3,279,517.

Applicant's amendment has overcome this rejection, because Arino et al. fail to show the annular weldment having a flat weldment surface as now claimed. Consequently, upon further consideration, the rejection has been withdrawn in view of the new ground(s) of rejection necessitated by amendment made below.

[10] Claims 23, 25, 29, and 30 were previously rejected under 35 U.S.C. 102(b) as being anticipated by Irimies US-5,493,833.

Applicant's amendment and remarks have been fully considered, but are not persuasive. The examiner takes the position that Irimies teaches the limitations found in the above claims, when the claims are treated in their broadest reasonable sense. The claims are directed to a fastener "prior" to welding, and accordingly, the fastener need not be used for welding, or may be welded to a substrate in an entirely different manner.

[11] Claims 23, 25, 26, 29-31, 33, and 37-41 were previously rejected under 35 U.S.C. 102(b) as being anticipated by Bregenzer GB 2065011.

Applicant's amendment has overcome the rejection under 35 U.S.C. 102(b) of only claims 23, 25, 26, 29, and 30, since Bregenzer fails to expressly teach between "20% to 35%". This newly added limitation is not anticipatory, but is still within an obvious scope of the Bregenzer reference. Consequently, upon further consideration, the rejection has been withdrawn in view of the new ground(s) of rejection necessitated by amendment made below.

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Applicant's amendments/arguments to overcome the rejection under 35 U.S.C. 102(b) of claims 31, 33, and 37-41 have been fully considered, but are not persuasive, because Bregenzer teaches a head having a web portion of greater cross-sectional area than the shank. Therefore, in it's broadest reasonable sense, Bregenzer teaches a web portion having a second failure load greater than a first failure load of the shank. Bregenzer teaches welding to a laminate panel (page 1 lines 30-32), and it is well-known in the art by those of ordinary skill that metal layers fuse under the high temperatures of welding, which melts the polymer therebetween.

[12] Claims 1, 2, 4-8, 10-12, 14-18, 23, 25-27, 29-31, 33, and 36-41 were previously rejected under 35 U.S.C. 103(a) as being obvious over WO 03/042554 A1 in view of Bregenzer GB 2065011 A and WO 03/004883.

Applicant seems to be arguing that the present invention is different, because the welding stud has an initial structure different from that taught by WO 03/042554 A1.

For the welding stud (apparatus) claims 1, 2, 4-7, 23, 25-27, 29, and 30, this argument has some basis, because the welding stud is claimed alone. Therefore structural features of the welding stud "prior to welding" should be given patentable weight. However, the Examiner takes the position the above references, when taken in combination as a whole, would make the claimed subject matter obvious to one having an ordinary skill in the art.

For the combination claims 8, 10-18, 31, 33, and 36-41, this argument is entirely not persuasive. Applicant is claiming a welded "stud to structure construction" and/or a "ring stud arc *welded* to a laminate panel". Figures 4 and 7 of the present invention show that after welding, the weldable fastener of the present invention will have different structural

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characteristics than before it is welded. For example, the annular weldment area and flat welding surface no longer exists. The structural characteristics and performance characteristics of the present invention *after welding* are identical to that taught by WO 03/042554 A1. Therefore, the stud to structure connection and/or ring stud arc welded to a laminate panel claimed is not patentably distinct from the prior art in at least an obviousness sense. Accordingly, combination claims 8, 10-18, 31, 33, and 36-41 are still within an obvious scope of these references.

Examiner notes that WO 03/042554 expressly discloses a "gap" between a bottom surface of a web portion and a panel after welding, while maintaining the same relative failure loads between components.

That said, the rejection of claims 1, 2, 4-8, 10-12, 14-18, 23, 25-27, 29-31, 33, and 36-41 under 35 U.S.C. 103(a) is moot in view of the following new grounds of rejection necessitated by amendment.

[13] Claim 13 was previously rejected under 35 U.S.C. 103(a) as being obvious over WO 03/042554 A1 in view of Bregenzer GB 2065011 A and WO 03/004883 and in even further view of Sherry et al. US-5,579,986.

Applicant's amendment/response to the rejection of 13 under 35 U.S.C. 103(a) is moot in view of the following new grounds of rejection for at least the reason that claims 8 and 10-12 are moot.

#### ***New Grounds of Rejection***

[14] The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:



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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

[15] Claims 1, 4, and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Muller US-4,633,560.

In short, and when the claims are given their broadest reasonable interpretation, Muller (Figure 2) shows a weldable (intended use) fastener having an annular weldment area (140) having a flat weldable surface (48), said weldment area having a second head thickness less than 50% of a first head thickness of a head (125,126,131,130). As for claim 4, Muller shows a weakened portion (broad) adjacent the head, said weakened portion being formed by a reduced diameter. Note that a (broad) "weakened section" comprises more than just an external annular groove, which is not claimed.

### ***Claim Rejections - 35 USC § 103***

[16] The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

[17] As they are understood, claims 8, 10-12, 14-18, 31, 33, and 36-41 are rejected under 35 U.S.C. 103(a) as being obvious over WO 03/042554 A1 in view of Bregenzer GB 2065011 A and Applicant submitted NPL.

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In short, and in its broadest reasonable interpretation, the WO 03/042554 A1 reference teaches a stud to structure construction/apparatus having a stud welded to a panel structure, said fastener having an externally threaded shank, a head with web portion having a first head thickness that is greater than a second weldment area thickness. The reference states that the shank has a first failure load less than a second failure load of the web. This would be clearly apparent and/or appreciated by those of ordinary skill in the art, because the web has a larger cross-sectional area than the shank. The weldment area taught by the WO 03/042554 A1 reference has a third failure load greater than said first failure load of the shank, since it, too, has a larger cross-sectional area than the shank. The shank possesses a weakened section positioned near the head. It is irrelevant whether or not the weldment area has a second head thickness that is less than 50% and preferably about 20-35% that of the thickness between a top and bottom surface of the head prior to welding, as this limitation is regarded as a product-by-process limitation and has not been given significant patentable weight. What is claimed is a welded construction/apparatus (post welding) and therefore, limitations directed to the structure of the fastener prior to welding are considered product-by-process limitations.

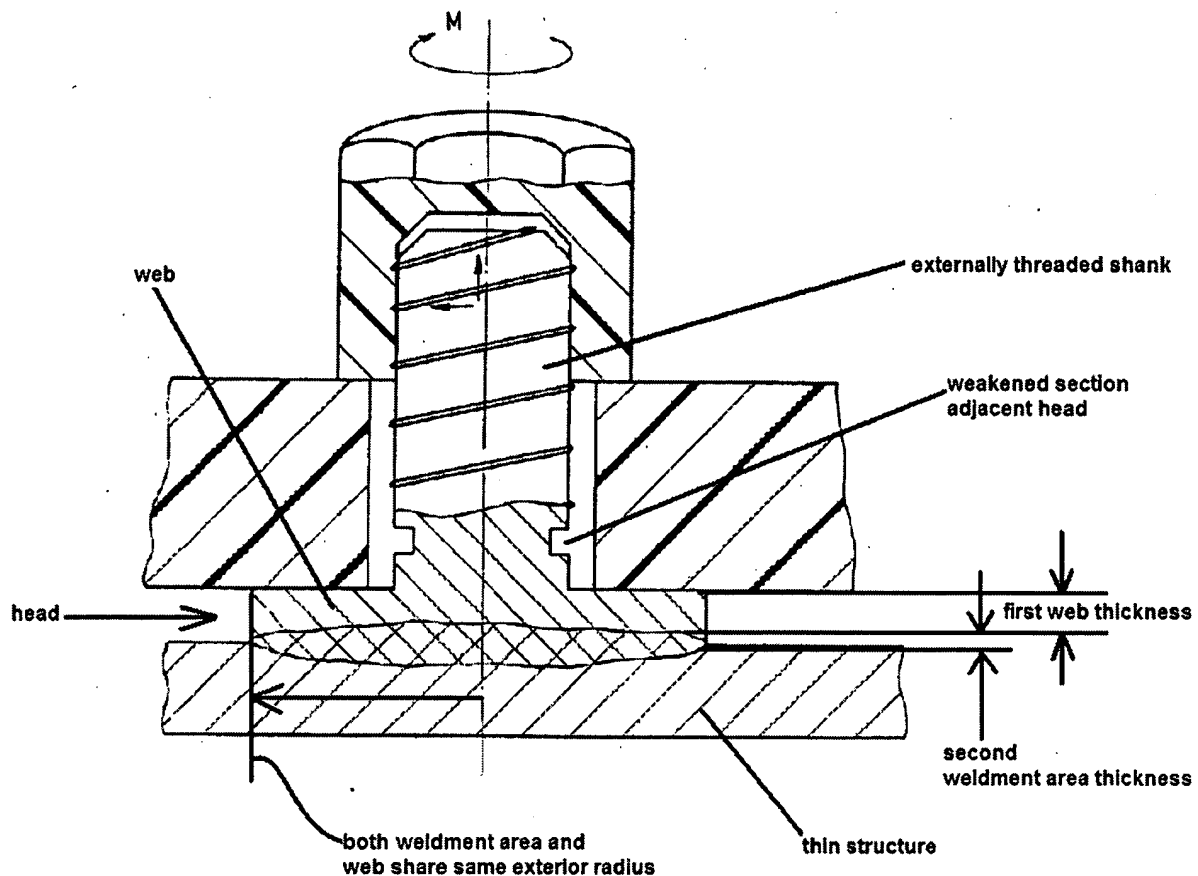


Figure 1 of WO 03/042554 A1

Moreover, it appears that the present invention has no significant performance improvement over the prior art WO 03/042554 A1 reference, as shown below. Absent further evidence from Applicant, the Examiner cannot see how the claimed invention "performs differently" *after welding*, even though the welding surface may differ *prior to welding*. Each and every first, second, third, and fourth failure load appears to be same when compared relative to each other as shown in the charts below.

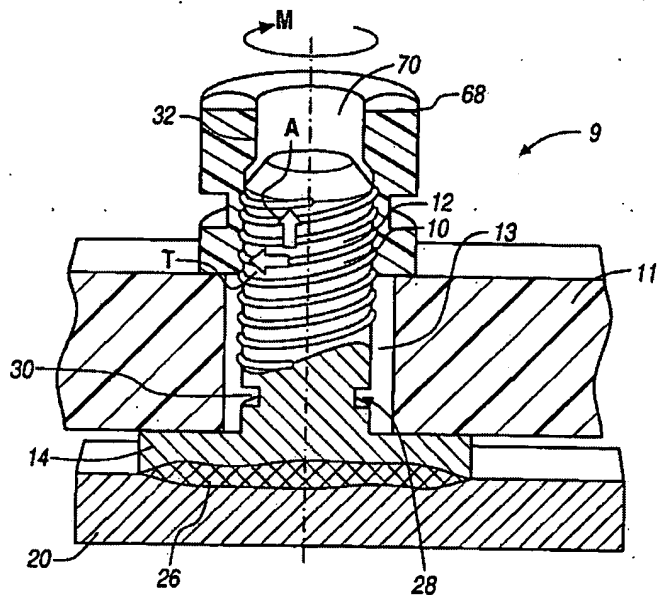


Figure 4 of Present Invention

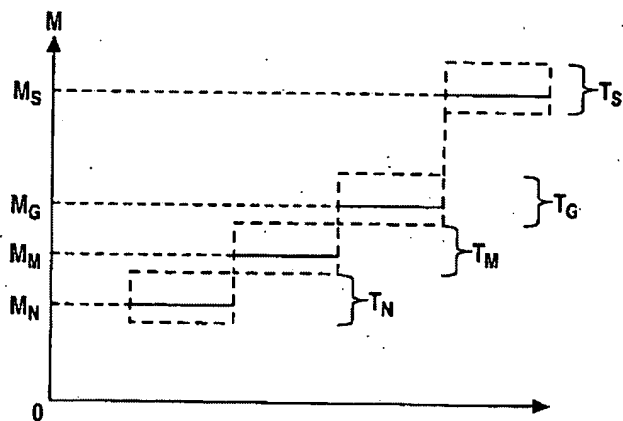


Figure 7 of Present Invention

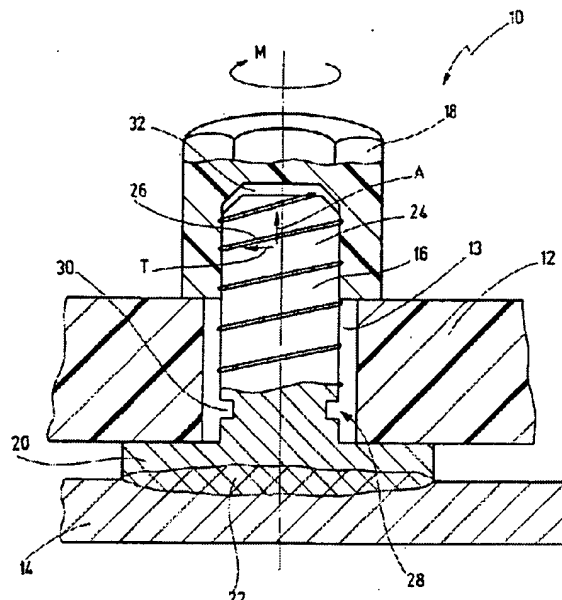


Figure 1 of WO 03/042554 A1

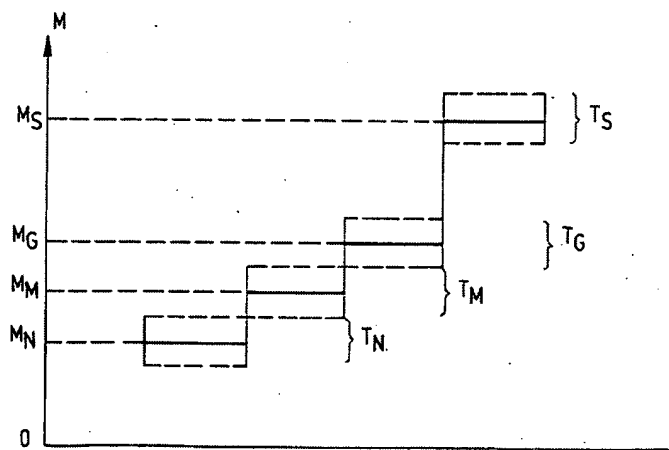


Figure 4 of WO 03/042554 A1

However, the WO 03/042554 A1 does appear to be silent about the panel being a laminate panel comprised of metal sheets sandwiching a polymer layer.

Bregenzer suggests to one of ordinary skill employing a similar weldable fastener to a thin laminate metal panel having a polymer layer between first and second metallic layers. It is well-known in the art that such panels are advantageous due to their reduced weight.

The device taught by WO 03/042554 A1 is useful in automotive applications, and particularly for use with auto body panels. Applicant submitted NPL suggests that metal/polymer laminates such as Hylite® are well-known in the automotive industry as advantageous equivalents to conventional sheet metal body panels, because they are lighter in weight, provide better insulation, and possess improved sound and vibration damping characteristics. Therefore, at the time of invention, it would have been obvious to one of ordinary skill in the art, to advantageously substitute a conventional automotive body panel with a laminate sheet metal structure for the abovementioned advantages. The functional limitations and interaction between the metal panels being fused together (particularly claim 18) is an inherent result of welding said metal laminate sheets as evidenced by the below illustration:

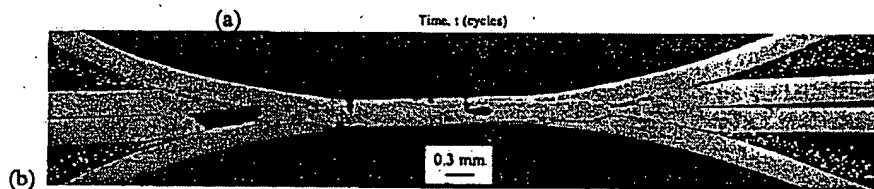


Fig.4: (a)  $V(t)$  and  $I(t)$  plots obtained during resistance welding of two HSSA sheets (cycle time = 200 ms) and (b) micrograph of a polished section through such a weld.

T.W. Clyne et al., "Development of a New Ultra-Light Metallic Sheet Material", January 2002, Research Proposal for Cambridge-MIT Institute.

Therefore, in view of the above references, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the panel (14) taught by the WO 03/042554 A1 reference to be made of metal laminate material having a polymer sandwiched between first and

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second metallic layers as suggested by Bregenzer, and as evidenced by the Applicant-submitted NPL, since it is well-known that such laminates are lighter in weight, provide better insulation, possess improved sound and vibration damping characteristics, and are generally accepted as being advantageous substitutes for conventional sheet metal panels.

As long as some motivation or suggestion to combine the references is provided by the prior art taken as a whole, the law does not require that the references be combined for the reasons contemplated by the inventor. *See In re Beattie*, 974 F.2d 1309, 24 USPQ2d 1040 (Fed. Cir. 1992); *In re Kronig*, 539 F.2d 1300, 190 USPQ 425 (CCPA 1976) and *In re Wilder*, 429 F.2d 447, 166 USPQ 545 (CCPA 1970). The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. *In re Keller*, 642 F. 2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). In this regard, a conclusion of obviousness may be based on common knowledge and common sense of the person of ordinary skill in the art without any specific hint or suggestion in a particular reference. *In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969).

**[18]** Claim 13 is rejected under 35 U.S.C. 103(a) as being obvious over WO 03/042554 A1 in view of Bregenzer GB 2065011 A and Applicant submitted NPL as discussed above, in even further view of Sherry et al. US-5,579,986.

In short, WO 03/042554 A1 teaches a nut having a fourth fracture load less than a third failure load of an annular weldment area. The reference further teaches towards weakening the

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nut so that it is ensured that the nut fractures before the stud (paragraph [0008] line 15 and paragraph [0013] lines 7-13).

However, WO 03/042554 A1 fails to disclose expressly, the nut to have an exterior groove.

Sherry et al. shows a nut (12) for use in a similar application; said nut being secured to a weld stud having a weakened section. The nut has an exterior groove (between flange 21 and body 22), which serves to weaken the nut and better suits the nut for a swaging process.

Therefore, at the time of invention, it would have been obvious to one of ordinary skill in the art from the disclosure of Sherry et al., to employ a nut having an exterior groove in a weld fastener assembly, said nut having a fourth failure load less than a third failure load of an annular weldment, in order to ensure that the nut fractures before the stud and/or to better suit the nut for a swaging process.

[19] Claims 1, 2, 4-7, 23, 25, 26, and 27 are rejected under 35 U.S.C. 103(a) as being obvious over Soyer DE 4222664 A1.

In short, and when the claims are given their broadest reasonable interpretation, Soyer (Figure 2b) shows a weldable (intended use) fastener having a head, an annular weldment area on said head, said annular weldment area having a flat weldable surface, the annular weldment area being located on the side of the head opposite the shank, a threaded shank having a (broad) weakened portion (e.g., sharp corner) adjacent the head.

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However, the Soyer reference is silent as to the precise thicknesses of the head and weldment area. The Soyer reference is also silent to the thickness of the weldment area being less than 50% or between 20 and 30 percent of the head thickness.

At the time of invention, it would have been obvious to those having an ordinary skill in the art, to experiment with the relative dimensions and measured thicknesses of the head and weldment area, because it has been held that a change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955). See also, MPEP § 2144.04 which states: *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976) ("mere scaling up of a prior art process capable of being scaled up, if such were the case, would not establish patentability in a claim to an old process so scaled." 531 F.2d at 1053, 189 USPQ at 148.). In *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device.

### ***Conclusion***

[20] The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is as follows: See form PTO-892.



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[21] Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

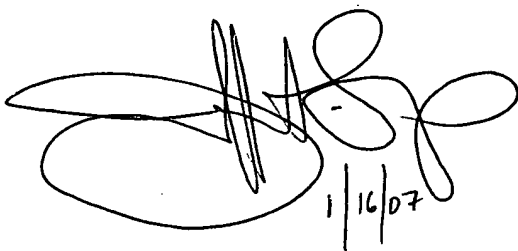
[22] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Sharp whose telephone number is (571) 272-7074. The examiner can normally be reached 7:00 am - 5:30 pm Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J.J. Swann can be reached on (571) 272-7075. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAS



Handwritten signature and date 1/16/07



**ROBERT J. SANDY**  
**PRIMARY EXAMINER**